Small Business Innovation Research/Small Business Tech Transfer

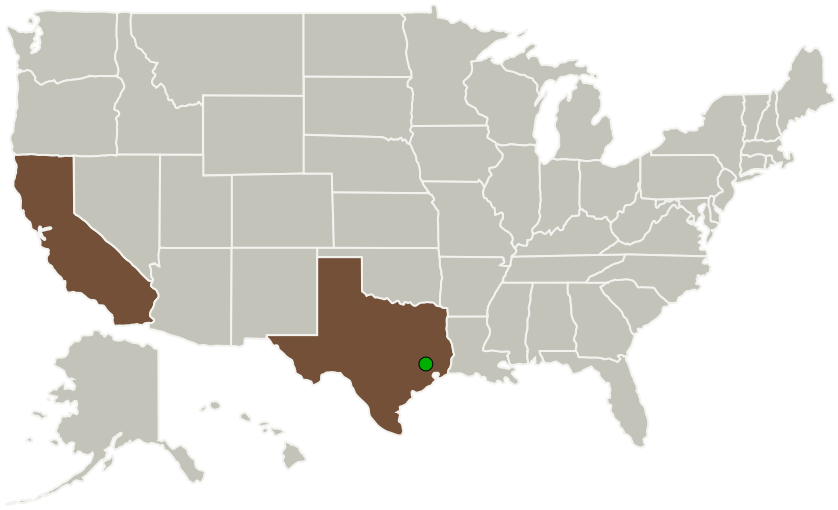
5D Task Analysis Visualization Tool, Phase I

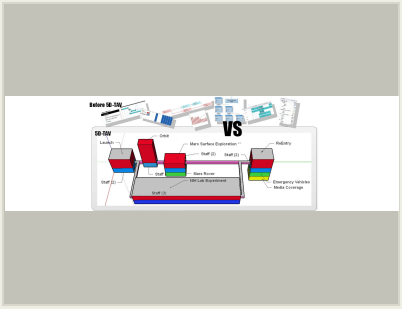
Completed Technology Project (2016 - 2016)

Project Introduction

The creation of a five-dimensional task analysis visualization (5D-TAV) software tool for Task Analysis and Workload Planning using multi-dimensional visualization will have significant positive impacts on the optimization of human-centered design at NASA. Recent research identified a 40% improvement in task analysis accuracy and efficiency using 3D visualization. Employing enterprise data integration and management innovation, configuration management, and loosely-coupled reusable libraries provides a single 5D model accentuating critical path, risk to task completion, staff selection, complexity, and conflicts. Such a software tool promises increased awareness for project management, operations personnel, and designers, improving efficiency and decision making, and reducing risk. These improvements will lead directly to improved system design and utilization of crew, as well as optimization of human and system allocations. The 5D-TAV tool's proposed integrated architecture incorporating available commercial tools provides the views, filters, rotations, and controls necessary for successful task analysis visualization and data management to increase mission success.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Ricardo Defense, Inc.	Lead Organization	Industry	Goleta, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas

Primary U.S. Work Locations	
California	Texas

Project Transitions

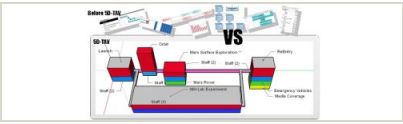
June 2016: Project Start

December 2016: Closed out

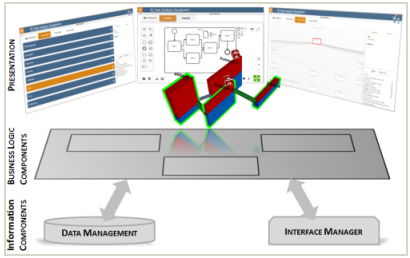
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140026)*

Images



Briefing Chart Image
5D Task Analysis Visualization Tool, Phase I
(https://techport.nasa.gov/image/131259)



Final Summary Chart Image
5D Task Analysis Visualization Tool, Phase I Project Image
(https://techport.nasa.gov/image/127749)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Ricardo Defense, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

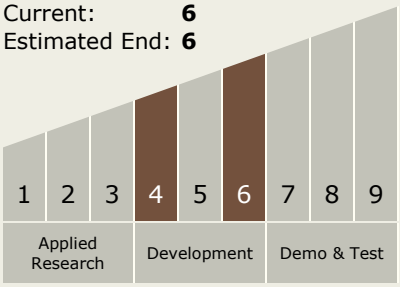
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Jonathan Dorny

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.6 Human Systems Integration
    - TX06.6.1 Human Factors Engineering

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System